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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,329	07/14/2003	Stephen F. Brown	021318-000610US	7952

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EXAMINER	
VO, TUNG T	
ART UNIT	PAPER NUMBER
2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/620,329	BROWN ET AL.	
	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18,22-24,28 and 29* is/are pending in the application.

4a) Of the above claim(s) *17-21 and 25-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18,22-24,28 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/05, 03/05, 08/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 8-11, 13, 15, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Panusopone et al. (US 6,647,061).

Re claim 1, Panusopone discloses an apparatus (figs. 5A and 5B) for processing a video an incoming bitstream coded from for a first hybrid video codec (MPEG-2 stream of fig. 5A) to an outgoing bitstream coded for a second hybrid video codec (MPEG-4 stream of fig. 5B), the apparatus comprising:

a variable length decoder (405 of fig. 5A) adapted to decode the incoming video bitstream from the first hybrid video codec, the variable length decoder being further adapted to output decoded bitstream symbols (Note macroblock type, motion vectors and transform coefficients);

a semantic conversion unit (the combination of elements (304, 308, 510, 520, 546, 545, 540...350 of figs. 5A and 5B) are considered as a semantic conversion unit) to perform semantic conversion of the decoded symbols, the semantic conversion processing unit further adapted to

process a portion of the decoded bitstream symbols to adapt the decoded bitstream symbols to be converted symbols compatible with the second hybrid video codec (MPEG-4); and

a variable length encoder (370 of fig. 5B) adapted to encode the converted symbols from the output of the unit for the second hybrid video codec, thereby providing the outgoing bitstream (MPEG-4 stream of fig. 5B).

Re claim 2, Panusopone further discloses wherein the semantic conversion unit comprise is adapted to perform an inverse intra AC prediction of a plurality of intra macroblock coefficients (350 of fig. 5B, Note perform AC prediction of the Intra macroblock coefficients is the inverse intra AC prediction) based upon one or more predetermined parameters (MPEG-4 header (306 of fig. 5A).

Re claim 3, Panusopone further discloses wherein the one or more predetermined parameters to perform the inverse intra AC prediction is provided on a macroblock by macroblock basis and a processing is provided on the macroblock by macroblock basis (AC prediction (308 of fig. 5B) performs the inverse intra AC prediction; col. 6, line 64-col.7, line 5).

Re claim 4, Panusopone further discloses the incoming bitstream comprising comprises a plurality of macroblocks from the first hybrid video codec and decoding is performed on a macroblock by macroblock basis among the plurality of macroblocks (405 of fig. 5A); the apparatus further (fig. 5A and 5B) comprising a processor (308 of fig. 5A) comprising:

a framesize converter (540 and 545 of fig. 5B) adapted to determine if an input frame size of the plurality of macroblocks is supported by the second hybrid video codec (MPEG-4, col. 18, lines 54-62); and convert the input frame size to be an output frame size supported by the second hybrid video codec if the input frame size is not supported by the second hybrid video codec

(Col. 18, line 35-col. 20, line 3; and fig. 6; Note transcoder (500 of fig. 5A and 5B) for converting (720x480) to 352x240), col. 18, lines 51-53); and

a motion vector converter (510 of fig. 5B) adapted to: determine if one or more of a plurality of input motion vectors is supported by the second hybrid video codec (308 of fig. 5A); and convert the one or more input motion vectors to be one or more output motion vectors supported by the second hybrid video codec if the one or more input motion vectors is not supported by the second hybrid video codec to form resulting transcoded data (col. 19); and an encoder (360 and 370 of fig. 5B) adapted to encode the transcoded data of the plurality of macroblocks on a macroblock by macroblock basis (col. 14, line 55-col. 15,line 41).

Re claim 8, Panusopone further discloses wherein the motion vector converter is further adapted to convert input macroblocks with multiple input motion vectors to a larger number of output motion vectors by replicating the motion vectors (col. 19, lines 5-6, Note uni-directional MV is converted into bi-directional vectors as replicating the motion vectors).

Re claim 9, Panusopone further discloses wherein the motion vector converter is further adapted to convert input macroblocks with multiple motion vectors are to a smaller number of output motion vectors by one or more processes including an arithmetic mean or a median process (col. 14, line 66-col. 15,line 1).

Re claim 10, Panusopone further discloses wherein the input motion vectors that reference a different reference frame than the output codec a reference frame associated with the second hybrid video codec are scaled to form the output motion vectors (510 of fig. 5A and 5B, Note downsampling motion vector for MPEG-4).

Re claim 11, Panusopone further discloses wherein the input motion vectors that use a higher resolution than that supported by the second hybrid video codec are rounded to t-he a nearest valid output motion vector (col. 16, lines 39-67; Note 4x1vectors).

Re claim 13, Panusopone further discloses wherein the motion vector converter is further adapted to convert input motion vectors that are outside the a range of valid output motion vectors by choosing the a largest valid output vector with the a same direction as the input motion vector (col. 15, lines 1-2, Note keep a 16x16 MV is largest valid output vector).

Re claim 15, Panusopone further discloses wherein multiple motion vectors associated with an MPEG-4 input macroblock and a smaller number of output motion vectors is a single output motion vector (col. 17, line 56-col. 8, line 35).

Re claim 22, Panusopone further discloses wherein at least one of the processor, the decoder, the variable length decoder, the semantic conversion unit, the encoder, or the variable length encoder is further adapted to convert an input P frame into an I frame (col. 19, lines 6-7).

Re claim 23, Panusopone further discloses wherein at least one of the processor, the decoder, the variable length decoder, the semantic conversion unit, the encoder, or the variable length encoder is further adapted to remove one or more MPEG-4 "Not Coded" frames from the decoded bitstream (col. 15, lines 9-10).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 5-7, 12, 14, 16-18, 24, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panusopone et al. (US 6,647,061) in view of Efficient MPEG-4/H/263 video transcoder for interoperability of heterogeneous multimedia networks by S. Dogan, A.H. Sadka and A.M. Kondoz (hereafter Dogan).

Re claims 5, 12, 14, 16-18, 24, and 28-29, Panusopone does not particularly teach wherein the first hybrid video codec is Simple Profile MPEG 4 and the second hybrid video codec is Baseline H.263; wherein the input motion vectors are MPEG-4 motion vectors and the range of valid output motion vectors is an H.263 range of valid output motion vectors and the largest allowed output values are largest allowed H.263 values; wherein the input motion vectors are MPEG-4 motion vectors and the range of valid output motion vectors is an H.263 range of valid output motion vectors and the largest valid vector is a largest valid H.263 vector; wherein at least one of the processor, the decoder, the variable length decoder, the semantic conversion unit, the encoder, or the variable length encoder is further adapted to convert one or more of MPEG-4 "Not Coded" frames into an one or more H.263 P frames each with macroblocks coded as a "Not Coded" macroblocks; wherein the first hybrid video codec is Baseline H.263 and the second hybrid video codec is MPEG-4; skipping at a predetermined frequency, an optimized mode to prevent build up of a drift error in a transcoding process as claimed.

However, Dogan teaches the two-way video communications between MPEG-4 and H.263 standards (fig. 1) comprises wherein the first hybrid video codec is Simple Profile MPEG 4 and the second hybrid video codec is Baseline H.263 (fig.1); wherein the input motion vectors are MPEG-4 motion vectors and the range of valid output motion vectors is an H.263 range of valid output motion vectors and the largest allowed output values are largest allowed H.263 values (Motion Vectors of fig. 1; Note MPEG-4 standard is unrestricted motion vectors that can be outside the picture); wherein the input motion vectors are MPEG-4 motion vectors and the range of valid output motion vectors is an H.263 range of valid output motion vectors and the largest valid vector is a largest valid H.263 vector; wherein at least one of the processor, the decoder, the variable length decoder, the semantic conversion unit, the encoder, or the variable length encoder is further adapted to convert one or more of MPEG-4 "Not Coded" frames into an one or more H.263 P frames each with macroblocks coded as a "Not Coded" macroblocks (col. 2 of page 683 and col. 1 of page 684); wherein the first hybrid video codec is Baseline H.263 and the second hybrid video codec is MPEG-4 (fig. 1); skipping at a predetermined frequency, an optimized mode to prevent build up of a drift error in a transcoding process (figs. 2 and 3); wherein the motion vector converter is further adapted to convert input motion vectors that are outside a range of valid output motion vectors by clipping the components to the largest allowed output values (GOV data of fig. 1) ; wherein the input motion vectors are MPEG-4 motion vectors that point outside the a video frame and the largest allowed output values are converted by clipping the components of the vectors to be a frame edge (VO of fig. 1).

Therefore, taking the teachings of Panusopone and Dogan as a whole, it would have been obvious to one of ordinary skill in the art to incorporate transcoding between MPEG-4 and H.263

standards (pages 863-864) of Dogan into the apparatus of Panusopone in order to provide the novel transcoding algorithm that is proved to give highly improved service quality while reducing the complexity and time delay of conventional cascaded decoding/re-encoding processes.

Re claims 6 and 7, Dogan further teaches wherein the framesize converter is further adapted to convert the input frame size to an output frame size supported by setting the output frame size to the a smallest valid output frame size that is larger than the input frame size (fig. 1, col. 1, last paragraph, page 863) and; wherein the encoder is further adapted to for intra frames, encode additional macroblocks in the output frame as predetermined coded macroblocks, and for inter frames, encode additional macroblocks in the an output frame as "not coded" macrcblock (col. 2, page 863, "As shown...Simulations"); wherein the framesize converter is further adapted to convert the input frame size to an output frame size supported by setting the output frame size to a largest valid output frame size that is smaller than the input frame size and cropping macroblocks from the input frame that do not fit in the an output frame (col. 2, page 863, "Simulation... MPEG-4 path").

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoo et al. (US 6,999,512) discloses a transcoding method and apparatus therefor, MPEG-1 to MPEG-4.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tung Vo
Primary Examiner
Art Unit 2621